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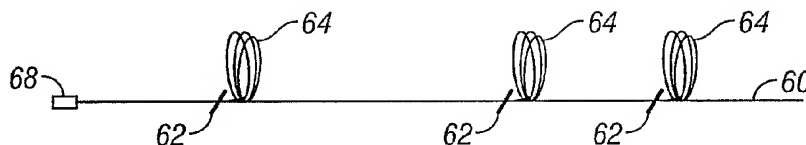
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(54) Title: APPARATUS AND METHODS FOR DISTRIBUTED TEMPERATURE SENSING



(57) **Abstract:** A sensing fibre for use in a distributed temperature sensing system comprises an optical fibre to be deployed in a measurement region in which a temperature measurement is to be made, which incorporates a reflective element, such as a join between portions of fibre, and a coiled fibre portion positioned adjacent a distal side of the reflective element, the coiled fibre portion contributing substantially nothing to the spatial extent of the optical fibre when deployed. In use, the effect of any forward propagating light incident on the reflective element that is returned for detection by the system, and which saturates the detector, can be eliminated by removing the part of the detected signal that corresponds to the coiled portion, after which the detector will have recovered. The remaining parts of the signal can be used to derive the distributed temperature profile since these parts represent the whole extent of the sensing fibre owing to the lack of spatial extent of the coil. Coils can be provided on both sides of the reflective element for double-ended temperature sensing techniques.

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